**Lenovo® recommends Windows Vista® Business.**

# ULTIMATE PERFORMANCE TO UNLEASH YOUR FULL POTENTIAL.

## THINKSTATION® S20 & D20

From Lenovo's exceptional engineers comes the next generation of ThinkStation®, designed exclusively for specialized professionals using graphically and computationally intensive applications. Its groundbreaking design ramps up parallel workflows, enabling professional users to quickly bring their ideas to life.

Equipped with the latest technology from Intel®, the ThinkStation delivers performance that is simply unattainable with a standard desktop PC. The ThinkStation S20 and D20's powerful and efficient Intel® Xeon® processors speed through even the toughest workloads. Sporting up to eight powerful processing cores, the new ThinkStation comes fully equipped with an on-chip memory controller and Intel® QuickPath Interconnect, allowing you to innovate faster than ever before.

The Lenovo ThinkStation has an environmentally conscious, user-centric design that ultimately results in increased productivity. In addition, the performance and quality-focused Lenovo ThinkStation supports ThinkVantage® Technologies such as Rescue and Recovery™ and Client Security Solution, providing users with superior data security.

### EXTREME PERFORMANCE

- Brand-new Intel® Xeon® CPUs on both S and D series workstations deliver unmatched performance with incredible efficiency
- ThinkStation workstations come armed with a full line of bleeding-edge graphics technologies, including the NVIDIA® QUADRO® line, supporting SLI on select D Series configurations, and ATI® FirePro™ graphics
- With up to a 1060W power supply on the D series, ThinkStation delivers all the juice your key components need to maintain peak performance

### QUIET AND RELIABLE

- The ThinkStation's 24db idle operating noise level makes it nearly undetectable
- ThinkStation's unique thermal design is engineered for maximum cool air delivery to key components, reducing the risk of hardware failure

### ENVIRONMENTALLY RESPONSIBLE

- Both the S20 and D20 are EPEAT™ GOLD, GREENGUARD® Certified
- The ThinkStation S20 and D20 contain more than 50% recycled plastics, including 26% post-consumer content
- All ThinkStation models are RoHS compliant
- Many ThinkStation models are Energy Star® 5.0 compliant

### ENGINEERED FOR THE ULTIMATE USER EXPERIENCE

- The ThinkStation's secure premium cover latch makes the cover easily removable, allowing users to make instant upgrades
- The ThinkStation's illuminated front panel and icons make ports easily accessible, especially in studio and office environments
- The ThinkStation's ergonomically designed, removable handle makes it easy to carry, move and manage
- Rack implementation is possible both in the ThinkStation S20 and the ThinkStation D20

## TOP REASONS TO OWN

- THE ULTIMATE USER-FRIENDLY WORKSTATION EXPERIENCE
- PERFORMANCE THAT TAKES EXTREME SPEED AND EFFICIENCY TO NEW LEVELS
- COOL AND QUIET
- POWER AND EXPANDABILITY THAT'S UNATTAINABLE ON A DESKTOP PC
- TESTED AND CERTIFIED BY ISVs

ThinkStation™ Ideas
Energy Efficient
Low Operating Noise
Greater Expandability
Extreme Performance

lenovo®
NEW WORLD. NEW THINKING.™

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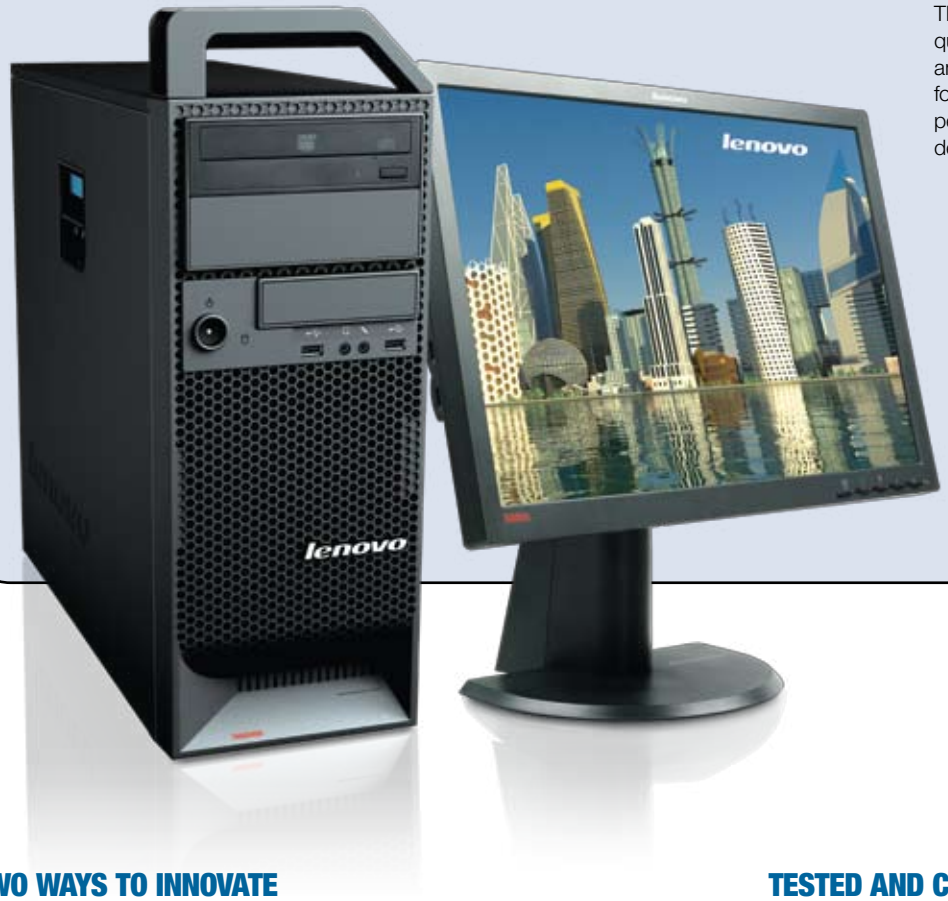
# CUTTING-EDGE POWER.

## THINKSTATION® S20 & D20




The ThinkStation® is a high performance, high quality workstation designed to run graphically and computationally intensive applications for professional users who require a level of performance unattainable with a standard desktop PC.

### TWO WAYS TO INNOVATE

- All Lenovo ThinkStation workstations share common features that showcase Lenovo's dedication to quality, including quiet acoustics, a cool thermal design, RAID standard, back-lit front I/Os and tool-less upgrades. Both the S20 and D20 also feature unique qualities that make them a great match for your individual needs.
- The single-processor Intel® Xeon® ThinkStation S20 is the ideal mid-range workstation solution. Offering a robust 625W power supply, even the S20 allows for easy upgrades and offers support for two high-end powered graphics adapters. It is ideal for 2D digital content creators and users of mid-range CAD and EDA applications.
- The dual-processor Intel® Xeon® ThinkStation D20 is a computational powerhouse. Offering 12 DIMM slots and RDIMM technology, the D20 supports up to 96GB of blazing-fast DDR3 memory and is perfect for users of memory and CPU-hungry applications like high-end CAD/CAM/CAE, 3D digital content creation and professional video editing software. The D20 also offers 1394 and SAS support standard, support for NVIDIA's Tesla™ C1060 GPU computing solution and NVIDIA SL on select Quadro cards, as well as more expandability options than the S Series.

### TESTED AND CERTIFIED BY ISVs

Lenovo is working closely with leading software partners — such as Autodesk®, Dassault Systèmes® and PTC® — to ensure optimum performance and stability in the demanding applications you use every day. Independent Software Vendors (ISVs) test and certify system and application compatibility, providing you the assurance of a robust and reliable platform.

### LEADING INTEL® TECHNOLOGIES

The new performance-driven Intel® Xeon® micro architecture utilizes Intel's new 45nm technology for energy-efficient, multi-core processing.

- More instructions per clock and improved caching
- Dynamic Power Management for less energy consumption during periods of low utilization
- Intel® Turbo Boost technology for additional performance during peak processing

Additionally, Intel's newest Xeon® processors deliver world class performance combined with superior energy efficiency through a large latency decrease and a bandwidth increase over previous generation workstations.

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# THINKSTATION® S20/D20 WORKSTATION SPECIFICATIONS AND SERVICES

**S20**

**Dual-Core**

Intel® Xeon® Processor W3503 - 2.4Ghz - 4.8 QPI, 4MB L2, DDR3-1066, 130W
Intel® Xeon® Processor W3505 - 2.53Ghz - 4.8 QPI, 4MB L2, DDR3-1066, 130W
Intel® Xeon® Processor E5502 - 1.86GHz - 4.8 QPI, 4MB L2, DDR3-800, 80W

**Quad-Core**

Intel® Xeon® Processor W3520 - 2.66Ghz - 4.8 QPI, 8MB L2, DDR3-1066, Turbo, HT, 130W
Intel® Xeon® Processor W3540 - 2.93GHz - 4.8 QPI, 8MB L2, DDR3-1066, Turbo, HT, 130W
Intel® Xeon® Processor W3570 - 3.2GHz - 6.4 QPI, 8MB L2, DDR3-1333, Turbo, HT, 130W
Intel® Xeon® Processor E5504 - 2.00GHz - 4.8 QPI, 4MB L2, DDR3-800, 80W
Intel® Xeon® Processor E5506 - 2.13GHz - 4.8 QPI, 4MB L2, DDR3-800, 80W
Intel® Xeon® Processor E5520 - 2.26GHz - 5.86 QPI, 8MB L2, DDR3-1066, Turbo, HT, 80W
Intel® Xeon® Processor E5530 - 2.40GHz - 5.86 QPI, 8MB L2, DDR3-1066, Turbo, HT, 80W
Intel® Xeon® Processor E5540 - 2.53GHz - 5.86 QPI, 8MB L2, DDR3-1066, Turbo, HT, 80W

**Extreme**

Intel® Xeon® Processor X5550 - 2.66GHz - 6.4 QPI, 8MB L2, DDR3-1333, Turbo, HT, 95W
Intel® Xeon® Processor X5560 - 2.80GHz - 6.4 QPI, 8MB L2, DDR3-1333, Turbo, HT, 95W
Intel® Xeon® Processor X5570 - 2.93GHz - 6.4 QPI, 8MB L2, DDR3-1333, Turbo, HT, 95W
Intel® Xeon® Processor W5580 - 3.20GHz - 6.4 QPI, 8MB L2, DDR3-1333, Turbo, HT, 130W

**D20**

**Dual-Core**

Intel® Xeon® Processor E5502 - 1.86GHz - 4.8 QPI, 4MB L2, DDR3-800, 80W

**Quad-Core**

Intel® Xeon® Processor E5504 - 2.00GHz - 4.8 QPI, 4MB L2, DDR3-800, 80W
Intel® Xeon® Processor E5506 - 2.13GHz - 4.8 QPI, 4MB L2, DDR3-800, 80W
Intel® Xeon® Processor E5520 - 2.26GHz - 5.86 QPI, 8MB L2, DDR3-1066, Turbo, HT, 80W
Intel® Xeon® Processor E5530 - 2.40GHz - 5.86 QPI, 8MB L2, DDR3-1066, Turbo, HT, 80W
Intel® Xeon® Processor E5540 - 2.53GHz - 5.86 QPI, 8MB L2, DDR3-1066, Turbo, HT, 80W
Intel® Xeon® Processor W5580 - 3.20GHz - 6.4 QPI, 8MB L2, DDR3-1333, Turbo, HT, 130W

**Extreme**

Intel® Xeon® Processor X5550 - 2.66GHz - 6.4 QPI, 8MB L2, DDR3-1333, Turbo, HT, 95W
Intel® Xeon® Processor X5560 - 2.80GHz - 6.4 QPI, 8MB L2, DDR3-1333, Turbo, HT, 95W
Intel® Xeon® Processor X5570 - 2.93GHz - 6.4 QPI, 8MB L2, DDR3-1333, Turbo, HT, 95W

| | | S20 | D20 |
|---|---|---|---|
| **Operating Systems** | Available Preloads | Genuine Windows Vista® Business 32<br>Genuine Windows Vista® Business 64 | Genuine Windows Vista® Business 32<br>Genuine Windows Vista® Business 64 |
| | Supported | Genuine Windows Vista® downgrade to Genuine Windows® XP Professional 32-bit<br>Genuine Windows® XP Professional 64-bit<br>Red Hat® Enterprise Linux® 5.2 64-bit | Genuine Windows Vista® downgrade to Genuine Windows® XP Professional 32-bit<br>Genuine Windows® XP Professional 64-bit<br>Red Hat® Enterprise Linux® 5.2 64-bit t |
| **Graphics** | from NVIDIA® | NVIDIA® Quadro® NVS 290<br>NVIDIA Quadro FX 380<br>NVIDIA Quadro FX 580<br>NVIDIA Quadro FX 1800<br>NVIDIA Quadro FX 4800 | NVIDIA Quadro NVS 290<br>NVIDIA Quadro FX 380<br>NVIDIA Quadro FX 580<br>NVIDIA Quadro FX 1800<br>NVIDIA Quadro FX 4800 |
| | ATI® | ATI® FirePro® V3700<br>ATI FirePro V5700<br>ATI FirePro V7750 | ATI FirePro V3700<br>ATI FirePro V5700<br>ATI FirePro V7750 |
| | | Any combination of two of the above cards is supported. | |
| **Hard Disk Drives** | SATA - 3.5", 7200 rpm | 250GB, 500GB, 750GB, 1.0TB | 250GB, 500GB, 750GB, 1.0TB |
| | SATA - 2.5", 10000 rpm | 74GB, 150GB, 300GB | 74GB, 150GB, 300GB |
| | SAS* - 3.5", 15000 rpm | 147GB, 300GB | 147GB, 300GB |
| | | *Adapter card required for SAS on ThinkStation S20 | |
| **Optical Drives** | | DVD-ROM | DVD-ROM |
| | | DVD +/- RW DL | DVD +/- RW DL |
| | | Blu-ray™ Disc Burner | Blu-ray™ Disc Burner |
| **Physical** | Chassis Form Factor | Mid-Tower | Tower |
| | Dimensions (without handle) | 426 x 175 x 483mm | 434 x 210 x 602mm |
| | Weight (typical config.) | ~15 kg | ~25kg |
| | Internal Speaker | Standard | Standard |
| | Rack Mounting | Via rack shelf | Via shelf or optional rail kit |
| **Slots/Bays** | Gen 2 PCIe x16 Slots | 2 | 2 |
| | PCIe x 4 Slots | 1 (x16 physical) | 1 (x16 physical) |
| | PCIe x 1 Slots | 1 | 2 |
| | PCI Slots | 1 | 2 |
| | 3.5" Internal Bays | 3 | 5 |
| | 3.5" External Bays | 1 | 1 |
| | 5.25" External Bays | 2 | 3 |
| **Motherboard** | Form Factor | Full ATX | Extended ATX |
| | Chipset | Intel® Tylersburg 36S | Intel® Tylersburg 36D |
| | Ethernet | Broadcom 5755 | 1x Broadcom 5755 plus 1x Broadcom 5754 |
| | SATA/SAS Connectors | 1 eSATA, 5 SATA Gen 2 | 1 eSATA, 5 SATA Gen 2, 5 SAS |
| | Memory Type | DDR3 ECC UDIMM | DDR3 ECC UDIMM and DDR3 RDIMM |
| | Memory Speed | Up to 1333MHz | Up to 1333MHz |
| | DIMM Slots | 6 | 12 |
| | Maximum Memory | 12GB | 96GB |
| **Power Supply** | Wattage | 625W | 1060W |
| | Efficiency | 85%+ | 85%+ |
| | Rating | 100-127/200-240V<br>8/4A | 100-127/200-240V<br>12/6A |
| **Environmental** | EPEAT Rating | Gold | Gold |
| | Energy Star 5.0 | Select Models | Select Models |
| | RoHS Compliant | Yes | Yes |
| | Total Recycled Plastic Content | 50% | 50% |
| | Post Consumer Recycled Content | ~26% | ~27% |
| | GREENGUARD® Certified | Yes | Yes |
| **Front I/O** | Back-lit Icons | Yes | Yes |
| | IEEE 1394 | No | Standard 6-pin |
| | Memory Card Reader | 20-in-1 | 20-in-1 |
| | Analog Audio | Stereo, Mic | Stereo, Mic |
| **Rear I/O** | Serial | 1 (2nd Optional) | 1 (2nd Optional) |
| | Ethernet | Gigabit (RJ45) | 2x Gigabit (RJ45) |
| | IEEE 1394 | Optional via Card | Standard 6-pin |
| | USB | 8 | 8 |
| | Analog Audio | 6 Connectors for 7.1 HD Audio | 6 Connectors for 7.1 HD Audio |
| | eSATA | 1 | 1 |
| | Digital Audio | 1 Optical In, 1 Optical Out | 1 Optical In, 1 Optical Out |



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Extreme Performance

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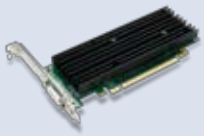
# THINKSTATION® S20/D20 WORKSTATION ACCESSORIES AND OPTIONS

| | ThinkStation S20 | ThinkStation D20 |
|---|---|---|

**Lenovo® ThinkVision™ L2440p Wide Monitor**
**(4420-HB2)** The L2440p is a champion for the environment, meeting the new ENERGY STAR 5.0 and EPEAT Gold certifications. Wide LCD supporting 1920x1200 WUXGA with full HD. 92% colour gamut for displaying vibrant colours. Analog and digital input. Tilt, swivel, and height-adjustable stand for optimum viewing comfort.

*www.lenovo.com/thinkvision; www.lenovo.com/support/monitoraccessories*



**Graphic Adapters**
Full range of graphic cards, from 2D business graphics to 3D ultra-high CAD and Digital Content Creation.

**(43R1765)** NVIDIA® Quadro® NVS 290 Dual Digital or Dual Analog
**(45K1670)** NVIDIA Quadro FX 380 Dual DVI-I
**(45K1672)** NVIDIA Quadro FX 1800 Dual DisplayPort, DVI-I
**(45K1674)** NVIDIA Quadro FX 4800 Dual DisplayPort, DVI-I, Stereo
**(51J0510)** ATI FirePro V5700 Dual DisplayPort, DVI-I

**(45K1669)** NVIDIA Quadro NVS 295* Dual-DisplayPort
**(45K1671)** NVIDIA Quadro FX 580 Dual DisplayPort, DVI-I
**(45K1673)** NVIDIA Quadro FX 3800* Dual DisplayPort, DVI-I, Stereo
**(51J0509)** ATI® FirePro® V3700 Dual DVI-I
**(51J0511)** ATI FirePro V7700 Dual DisplayPort, DVI-I

*www.lenovo.com/support/graphiccards*

** Available in April 2009*

**Workstation UDIMM memory**
Adding memory is a cost-effective method to boost system performance and productivity
**(45K1670)** PC3-10600 1333MHz DDR3 ECC UDIMM Memory – 1GB
**(45K1671)** PC3-10600 1333MHz DDR3 ECC UDIMM Memory – 2GB
**(51J0503)** PC3-8500 1066MHz DDR3 ECC UDIMM Memory - 1GB
**(51J0504)** PC3-8500 1066MHz DDR3 ECC UDIMM Memory - 2GB

**Workstation UDIMM and RDIMM memory**
Adding memory is a cost-effective method to boost system performance and productivity
**(45K1670)** PC3-10600 1333MHz DDR3 ECC UDIMM Memory – 1GB
**(45K1671)** PC3-10600 1333MHz DDR3 ECC UDIMM Memory – 2GB
**(51J0503)** PC3-8500 1066MHz DDR3 ECC UDIMM Memory - 1GB
**(51J0504)** PC3-8500 1066MHz DDR3 ECC UDIMM Memory - 2GB
**(43R2034)** PC3-8500 1066MHz DDR3 RDIMM Memory – 1GB
**(43R2035)** PC3-8500 1066MHz DDR3 RDIMM Memory – 2GB
**(43R2036)** PC3-8500 1066MHz DDR3 RDIMM Memory – 4GB
**(43R2037)** PC3-8500 1066MHz DDR3 RDIMM Memory – 8GB

**Storage**
Expand hard disk drive capacity and store more data

**(41N3015)** Lenovo 250GB 7200 rpm Serial ATA Hard Drive
**(43R1991)** Lenovo 750GB 7200 rpm Serial ATA Hard Drive
**(43R2030)** Lenovo 150GB 10K rpm Serial ATA Hard Drive
**(43R1993)** ThinkStation 146GB 15K rpm SAS Hard Drive

**(43R1990)** Lenovo 500GB 7200 rpm Serial ATA Hard Drive
**(45J7918)** Lenovo 1TB 7200 rpm Serial ATA Hard Drive
**(43R2031)** Lenovo 300GB 10K rpm Serial ATA Hard Drive
**(43R1994)** ThinkStation 300GB 15K rpm SAS Hard Drive

Mixing of Serial ATA and SAS Hard Drives is not recommended. Most S-Series models are configured with Serial ATA Hard Drives and most D-Series models are configured with SAS Hard Drives.

**Lenovo® Memory Keys**
Easily carry data with you between systems. A slim design allows space for other USB devices to be installed in adjoining USB ports.
**(41U5120)** Lenovo USB 2.0 Security Memory Key – 4GB **(45J5917)** Lenovo USB Ultra Secure Memory Key – 4GB
**(45J5918)** Lenovo USB Ultra Secure Memory Key – 8GB **(45K1258)** Lenovo USB 2.0 Essential Memory Key - 32GB

**Intel® Xeon® Processors**
Elite performance; add a 2nd processor to ThinkStation D20
**(43R2038)** Intel® Xeon® Processor E5520: 2.26GHz, 1066MHz, 8MBL2
**(43R2039)** Intel® Xeon® Processor E5530: 2.40GHz, 1066MHz, 8MBL2
**(43R2040)** Intel® Xeon® Processor E5540: 2.53GHz, 1066MHz, 8MBL2
**(43R2042)** Intel® Xeon® Processor X5550: 2.66GHz, 1333MHz, 8MBL2
**(43R2043)** Intel® Xeon® Processor X5560: 2.80GHz, 1333MHz, 8MBL2

**ThinkStation Rail Kit**
**(43R1964)** Easily install the ThinkStation D20 into a rack for data center environments

**Kensington Twin Head Cable Lock**
**(45K1620)** Secure ThinkStation® and/or a LCD monitor with a 6-foot (1.8m) steel composite cable with Kevlar brand fiber security cable lock. Meets the SAFE PRO security rating.

**www.lenovo.com**

THINK SAVINGS. THINK LENOVO.

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**Availability:** Offers, prices, specifications and availability may change without notice. Lenovo is not responsible for photographic or typographic errors.

**Warranty:** For a copy of applicable warranties, write to: Warranty Information, 500 Park Offices Drive, RTP, NC, 27709, Attn: Dept. ZPYA/B600. Lenovo makes no representation or warranty regarding third-party products or services.

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